

1. An antenna comprising:

a number of antenna elements, wherein said antenna elements comprise a
conducting metal wire having an outer jacket of conductive loaded resin-based material
around said conducting metal wire, and wherein said conductive loaded resin-based
5 material comprises micron conductor powders, micron conductor fibers, or a combination
of said micron conductor powders and said micron conductor fibers homogenized within
a base resin host and wherein the ratio of the weight of said micron conductor powders,
said micron conductor fibers, or said combination of said micron conductor powders and
said micron conductor fibers to the weight of said base resin host is between about 0.20
10 and 0.40; and

electrical continuity to and among said antenna elements.

2. The antenna of claim 1 wherein said conducting metal wire is a non-insulated, single
strand wire.

3. The antenna of claim 1 wherein said conducting metal wire is an insulated, single
strand wire having a layer of insulation between said single strand wire and said outer
jacket of conductive loaded resin-based material.

4. The antenna of claim 1 wherein said conducting metal wire is a non-insulated, multi-
strand wire.

5. The antenna of claim 1 wherein said conducting metal wire is an insulated, multi-strand wire having a layer of insulation between said multi-strand wire and said outer jacket of conductive loaded resin-based material.

5 6. The antenna of claim 1 wherein said micron conductor powders comprise micron conductor particles having generally spherical shapes and diameters of between about 3 and 12 microns.

7. The antenna of claim 1 wherein said micron conductor fibers have diameters of
10 between about 3 and 12 microns.

8. The antenna of claim 1 wherein said micron conductor fibers have lengths of between about 2 and 14 millimeters.

15 9. The antenna of claim 1 wherein said micron conductor powders comprise micron conductor particles and wherein said particles are stainless steel, nickel, copper, silver, carbon, graphite, or plated particles.

10. The antenna of claim 1 wherein said micron conductor fibers are stainless steel,
20 nickel, copper, silver, carbon, graphite, or plated fibers.

11. The antenna of claim 1 wherein said conducting metal wire is copper, nickel, stainless steel, or silver.

12. The antenna of claim 1 wherein the antenna comprising said number of antenna
5 elements is designed for frequencies between about 2 Kilohertz and 300 Gigahertz.

13. The antenna of claim 1 wherein said antenna is a dipole antenna and said number of antenna elements is two antenna elements.

10 14. The antenna of claim 1 wherein said antenna is a monopole antenna and said number of antenna elements is one antenna element.

15 15. The antenna of claim 1 wherein said antenna is a monopole antenna, said number of antenna elements is one antenna element, and said antenna element is disposed perpendicular to a ground plane.

16. The antenna of claim 1 wherein said antenna can be a transmitting antenna, a receiving antenna, or both a transmitting antenna and a receiving antenna.

17. A method of fabricating an antenna, comprising:

fabricating a number of antenna elements, wherein said antenna elements
comprise a conducting metal wire having an outer jacket of conductive loaded resin-
based material around said conducting metal wire, and wherein said conductive loaded
5 resin-based material comprises micron conductor powders, micron conductor fibers, or a
combination of said micron conductor powders and said micron conductor fibers
homogenized within a base resin host, and wherein the ratio of the weight of said micron
conductor powders, said micron conductor fibers, or said combination of said micron
conductor powders and said micron conductor fibers to the weight of said base resin host
10 is between about 0.20 and 0.40; and

making electrical connections to and among said antenna elements.

18. The method of claim 17 wherein said conducting metal wire is a non-insulated, single
strand wire.

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19. The method of claim 17 wherein said conducting metal wire is an insulated, single
strand wire having a layer of insulation between said single strand wire and said outer
jacket of conductive loaded resin-based material.

20 20. The method of claim 17 wherein said conducting metal wire is a non-insulated, multi-
strand wire.

21. The method of claim 17 wherein said conducting metal wire is an insulated, multi-strand wire having a layer of insulation between said multi-strand wire and said outer jacket of conductive loaded resin-based material.

5 22. The method of claim 17 wherein said micron conductor powders comprise micron conductor particles having generally spherical shapes and diameters of between about 3 and 12 microns.

23. The method of claim 17 wherein said micron conductor fibers have diameters of
10 between about 3 and 12 microns.

24. The method of claim 17 wherein said micron conductor fibers have lengths of between about 2 and 14 millimeters.

15 25. The method of claim 17 wherein said micron conductor powders comprise micron conductor particles and wherein said particles are stainless steel, nickel, copper, silver, carbon, graphite, or plated particles.

26. The method of claim 17 wherein said micron conductor fibers are stainless steel,
20 nickel, copper, silver, carbon, graphite, or plated fibers.

27. The method of claim 17 wherein said conducting metal wire is copper, nickel, stainless steel, or silver.

28. The method of claim 17 wherein the antenna comprising said number of antenna
5 elements is designed for frequencies between about 2 Kiloherz and 300 Gigahertz.

29. The method of claim 17 wherein said antenna is a dipole antenna and said number of antenna elements is two antenna elements.

10 30. The method of claim 17 wherein said antenna is a monopole antenna and said number of antenna elements is one antenna element.

31. The method of claim 17 wherein said antenna is a monopole antenna, said number of antenna elements is one antenna element, and said antenna element is disposed
15 perpendicular to a ground plane.

32. The method of claim 17 wherein said antenna can be a transmitting antenna, a receiving antenna, or both a transmitting antenna and a receiving antenna.

20 33. The method of claim 17 wherein said antenna elements are fabricated by extrusion or co-extrusion molding said conductor loaded resin-based materials around said conducting wire.

34. The method of claim 17 wherein said antenna elements are fabricated by molding said conductor loaded resin-based materials around said conducting wire.

- 5 35. The method of claim 17 wherein said fabricating said number of antenna elements comprises molding a length of said conducting metal wire having said outer jacket of conductive loaded resin-based material around said conducting metal wire and cutting said length of said conducting metal wire having said outer jacket of conductive loaded resin-based material around said conducting metal wire into a number of sub-lengths
- 10 wherein each of said sub-lengths is an antenna element.